Math 465, Computer Projects

Latest revision as of December 22, 1999

Introduction

Regarding computer projects:

- The projexts are meant to give you experience with
  - programming numerical routines,
  - learning to relate computational and theoretical results
  - developing a report writing style which communicates in an organized manner:
    - the problem considered
    - the methods used
    - the results obtained
    - the conclusions or interpretations reached.
- For the programming portion of the project you may use your own machine or your MSCC or other UW account. All computations should be done in double precision with a machine epsilon or unit roundoff giving about 16 digits of accuracy. All projects can be done by writing Matlab or Splus script and function files, taking advantage of the high level matrix and vector operations available in these languages. Other programming language (C, C++, Fortran) main and function or subroutine programs can also be used to for the calculational part of the projects. However you may not use a Matlab routine such as eig or fft or a library routine such as linpack dgefa in place of your own routine unless I explicitly give you permission.

- Any plotting required may be done directly in the main Matlab or Splus script/function, if you have used one of those languages for the calculations. You may also use any other plotting package, such as Excel (or gnuplot available on Saul), but you should document how you tranfer data from your computational program to the plotting program used, so any effects of the data transfer on accuracy can be understood.
- In your report you must include all the points described above.
- Your results and interpretations must include:
  - Observation/description of what happened when the program was run.
  - Explaintion of what happened in light of the theory we have studied.
- Your report should also include (probably as appendixes referred to at various points in your report)
  - Your program listings.
  - Your program output.
- The report is due at the beginning of class on the due date. Remember any written work must be coherent; the point of any report is to explain not just give answers.
- Please start early. Leave time to interpret your results.